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ABSTRACT

The relationship between children's play patterns and types of teacher intervention were studied in four preschool play settings. Subjects were preschool head teachers and children in 10 preschools. Each classroom was observed during the free play period on five consecutive days. Children's play behaviors were coded according to 12 categories of social-cognitive play. Play areas were coded according to four types and teachers' interventions were categorized into nine types. The most frequent interventions in the social play categories occurred for solitary play. There were no differences between frequency and type of intervention for boys or girls. The most frequent interventions in the cognitive categories occurred for constructive play. Different intervention patterns were used in each of the four play areas. The teachers intervened in the art play area most often and in dramatic play least often. Results indicated that children's play was influenced by teachers' intervention. To maintain educational play, teachers should seek an optimal level of intervention in children's play. A list of 36 references is provided. (BC)

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The Relationship Between Children's Play Patterns and Types of Teacher Intervention[1]

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Introduction

Play provides many excellent opportunities for young children to learn fundamental concepts and developing appropriate attitudes. It offers unique opportunities to strengthen interest and motivation (Bruner, 1972; Jackson & Angelino, 1974; Piaget, 1962; Sylva, 1977). Dansky and Silverman (1975) suggest that play activities can provide children with opportunities to organize their experiences and exercise their cognitive abilities to facilitate imaginative adaptations to future situations.

Play allows preschool children to interact with their social and physical environment. Spodek (1974) distinguishes between "recreational play" and "educational play", with the latter having educational consequences. Early childhood educators enhance children's play experiences by providing materials and settings and by stimulating play behaviors. Yet play should be player-centered -- initiated, and paced and controlled by the child. Tizard, Philps, and Plewis (1976) recommended that teachers provide directed educational play within a daily program largely devoted to active play. This study examined the relationship between children's play patterns and types of teacher intervention in four different preschool play settings. This study reflects three areas of educational inquiry: (1) research on play in the preschool curriculum, (2) studies of teaching strategies, and (3) ecological analysis of classrooms.

The cognitive play categories used in this study represent increasing complexities in children's use of objects from simple manipulative behaviors and routine use of toys (functional play), to combining and creating with materials (constructive play), to transforming or imagining objects (dramatic play). The social play categories represent increasing levels of behavioral complexity from playing alone (solitary play), to playing alongside another child in similar activities (parallel play), to simple and then more complex social collaboration (associative and cooperative play). Parten's (1932) categories of associative and cooperative play were combined into a single category of "interactive or group play," because of scoring unreliability (Johnson & Ershler, 1981; Rubin, Watson, & Jambor, 1978). By combining these two categories, no information was omitted; the observer recorded the same activities under a more general category of play (Roopnarine & Johnson, 1983).

Studies examining gender differences in preschool age children's play suggest that boys are more physical, and are more likely to engage in rough-and-tumble play than girls (Blurton-Jones, 1967, 1972; Smith & Connolly, 1972). Boys are described as exhibiting a greater preference for block building, adventuresome themes, and a larger variety of fantasy themes during dramatic play, while girls are described as showing a greater tendency to utilize small objects and construction materials in play and to prefer dramatic play involving domestic situations (McLoyd, Warren, & Thomas, 1984; Grief, 1976; Moore, Everton, & Brophy, 1974; Rubin, Maioni, & Hornung, 1976; Singer, 1973; Cramer & Hogan, 1975).

Play training studies have been reasonably successful in producing affective, cognitive, and social gains, as well as increasing creativity and intelligence scores through enhancing children's imaginative and sociodramatic play (Dansky, 1980a; Dansky & Silverman, 1975; Feitelson & Ross, 1973; Saltz, Dixon, & Johnson, 1977). Play training methods have also improved peer interaction and group problem solving and decreased aggression and hyperactive behaviors (Feitelson & Ross, 1973; Rosen, 1974). Furthermore, language skills, verbal fluency, comprehension, and recall have been shown to improve as a result of play training (Dansky, 1980b; Freyberg, 1973; Lovinger, 1974). Thus, play training

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is an important feature of the early childhood curriculum.

Research on play intervention, or play training, suggests that teacher intervention can increase the complexity of children's play (Rosen, 1974; Smilansky, 1968; Smith & Syddall, 1978; Tizard, Philps, & Plewis, 1976). These studies do not inform us about what interventions preschool teachers regularly use. Spidell (1985) observed preschool teachers and categorized their play interventions as conversation, participation, demonstration, environmental modification, praise, redirection, maintenance, and instruction. She did not, however, look at the outcomes of play interventions or the relationship of children's play to the interventions used.

Theoretical model of teachers' play interventions

This study reflects a model of the school environment in relation to educational play that is presented in Figure 1.

Insert Figure 1 about here

Educational play is characterized by three elements: social ecological factors, physical ecological factors, and children's play activities. To increase the complexity and the quality of children's play, the classroom environment can be modified in terms of (1) teacher interventions, a social ecological factor, and/or (2) play areas, a physical ecological factor; children's play activities should respond to these changes.

Earlier research has examined the relationship between play complexity and preschool settings (Johnson & Ershler, 1981, 1982). These studies suggested that play complexity could be increased through teacher intervention. Research on physical ecological factors has suggested that the play materials and physical settings had an impact on children's play (Pellegrini, 1982; Quilitch & Risley, 1973; Wanska, Bedrosian, & Pohlman, 1986). This study focuses on the teacher's role and classroom ecological factor in educational play.

Methods

Sample

Data were collected in ten preschool classrooms that: (a) had a free play session of approximately one-hour duration consisting of self-directed and self-selected play, and (2) included a variety of activity centers. The preschools selected were located in a midwestern university community. The children were mostly from middle class backgrounds.

Subjects

The subjects were ten preschool head teachers, each with at least two years teaching experience and a bachelor's degree in education, child development, or a related field. The children in their classroom were three or four years old; 74 boys (age: M = 4 years, 4 months, SD = 6.59 months) and 73 girls (M = 4 years, 3 months, SD = 6.93 months).

Measures

Independent variables. The two independent variables were children's gender and children's play patterns, including children's social and cognitive play behaviors, and non-play behaviors. Each play behavior was recorded using 12 play categories based on those used by Rubin, Maioni, and Hornung (1976).

Moderating variables. The four different play areas - sociodramatic play area, block play area, manipulative play area, and art area - served as moderating variables. It was hypothesized that the play area influenced the relationship between the types of the teacher intervention and the patterns of children's play behavior.

Dependent variables. Nine types of teacher intervention were observed as dependent variables: conversation, participation, demonstration, environmental modification, praise, redirection, maintenance, instruction, and command.

Instrument and observation procedure

Each classroom was observed for one hour during the free play period on five consecutive days. During this time, the children moved around the classroom engaging in various kinds of play. An event sampling procedure was used. A non-participant observer observed the teacher's behavior. When a teacher intervened in children's play (i.e., an event), the observer recorded the type of intervention as well as the children's play behavior immediately before the teacher intervention. The observer also recorded the child's gender and the play area. Approximately 30 seconds were required for each recording. The observations continued for one week in each classroom.

Children's play behavior. Children's play behaviors were coded according to social-cognitive patterns of play and non-play behavior. The social and cognitive play categories were based on Parten's (1932) and Rubin, Maioni, and Hornung (1976) systems. Four additional types of behaviors were also coded: unoccupied behavior, onlooker behavior, rough-and-tumble behavior, and conflict behavior. Thus, the categories of play and non-play patterns were: unoccupied behavior, onlooker behavior, rough-and-tumble behavior, conflict behavior, solitary functional play, solitary dramatic play, solitary constructive play, parallel functional play, parallel dramatic play, parallel constructive play, interactive dramatic play, and interactive constructive play.

The play areas. The play area in which play behaviors took place was recorded: (1) sociodramatic area, which might reflect such themes as housekeeping, hospital, store, or post office, and puppet or doll play; (2) block area, which included both large and small block, or box blocks; (3) manipulative area which included table play materials such as puzzle, writing, sewing, matching, or table games; and (4) art area which included such activities painting, drawing, play-dough, finger painting, or cutting and pasting.

Types of teacher intervention. The teacher's interventions were categorized into one of nine types of intervention: conversation, participation, demonstration, environmental modification, praise, redirection, maintenance, instruction, and command:

Conversation - A two way discourse between teacher and child concerned mainly with inquiring about the child's well-being, interests, or activities.

Participation - The teacher's involvement in an ongoing activity, such as joining the play as a visiting neighbor at the home center.

Demonstration - Exhibiting proper procedure to the child.

Environmental modification - Manipulating the environment, either by adding materials or redesigning centers. Managing space, moving children around, and setting or adding to limited materials are examples of this tactic.

Praise - Reinforcing a behavior, a process of play, or a product of achievement.

Redirection - Suggesting an alternative or new play activity and behavior that would move the child away from the present situation and discontinue participation in an ongoing play activity.

Maintenance - Keeping the free play period running smoothly. Keeping conversation going in the housekeeping center, getting more paint, taking a child's painting off an easel, or handing a child a toy which is out of reach.

Instruction - Instructing or lecturing to teach a fact, concept, or process.

Command or directing or coaching - Directing, commanding, or coaching to do something such as "Wash your hands.", "You need to clean this table."

Analysis

Interobserver agreements. Reliability was assessed for the observations using the degree of agreement between two coders. Cohen's Kappa (Cohen & Cohen, 1983) was computed as a measure of intercoder reliability. The two observers, graduate students in early childhood education, were trained to observe the types of teacher intervention, the patterns of children's play, and the play areas in the same classroom for one hour two separate times. The interobserver agreement on teacher intervention was .82; agreement on children's play was .91; and agreement on play area was 1.00.

Data analysis. The frequency and types of play interventions were analyzed according to children's play and non-play patterns, children's gender, and play areas. A descriptive analysis was done of individual differences in the frequency and types of intervention among ten teachers in relation to children's play, gender, and play areas. A quantitative analysis of the ten teachers' intervention patterns and the relationship of these patterns to children's play patterns, gender, and the play areas was also done with the Log Linear Models Approach (Kleinbaum, Kupper, & Muller, 1988).

Analysis I was based on categories of social play, including solitary, parallel and interactive play. Analysis II was based on the type of cognitive play including functional, dramatic and constructive play. Analysis I showed differences in nine types of teachers' intervention related to five social play patterns, four play areas, and children's gender. The patterns of children's play were collapsed into five categories. Category 1 included unoccupied and onlooker behavior; category 2 included rough and tumble play and conflict behavior; category 3 included solitary functional, solitary dramatic, and solitary constructive play; category 4 included parallel functional, parallel dramatic, and parallel constructive play; and category 5 included interactive constructive and interactive dramatic play.

Analysis II showed differences in nine types of teachers' intervention related to five cognitive play patterns, four play areas, and children's gender. The play patterns were collapsed into five categories. Category 1 included unoccupied behavior and onlooker behavior; category 2 included rough-and-tumble behavior and conflict behavior; category 3 included solitary constructive, parallel constructive, and interactive constructive play; category 4 included solitary dramatic, parallel dramatic, and interactive dramatic play; and category 5 included solitary functional and parallel functional play. The Log Linear Models Approach were used for Analysis I and II with the composite of the ten teachers intervention frequency.

Results

The data were analyzed by frequency and types of teacher interventions in relation to the patterns of children's play, their gender, and types of play areas.

The Relationships Between Teacher Intervention, Children's Play, Children's Gender, and Play Areas

Differences in patterns of intervention as well as in intervention frequencies were found among the ten teachers. The teachers were observed intervening an average of 460 times during the observation period. However, some teachers intervened in children's play over 600 times, while others intervened fewer than 300 times. Most teachers intervened most frequently using conversation and maintenance, with redirection, praise and instruction used next frequently. Command and participation were used least often.

Differences in patterns of teachers' intervention were also observed in relation to children's play patterns. The teachers intervened most frequently in solitary constructive play and parallel constructive play, and least frequently in solitary and parallel functional play. Here, too, individual differences were observed. The teachers intervened most frequently in the art area and least frequently in the block and manipulative areas. Again, individual differences were observed in the frequency of intervention among the play areas. The frequency of the ten teachers intervention was analyzed using the Log Linear Model.

Analysis I. The results of analysis I showed differences in types of teacher intervention with relation to social play patterns, play areas, and children's gender. The interventions most frequently used by teachers were maintenance, conversation, redirection, and praise. Instruction and

environmental modification were used moderately, while command, participation, and demonstration were seldom used.

In relation to social play patterns, most teacher were observed intervening most frequently in relation to parallel play; the next highest frequency of intervention occurred in solitary play. Interventions occurred less frequently in unoccupied behavior and onlooker behavior, interactive play, and rough and tumble and conflict behavior. Different intervention patterns were observed in relation to different social play patterns. The teachers most often used redirection and conversation in relation to onlooker and unoccupied behavior. The teachers most frequently used conversation and command in relation to rough-and-tumble and conflict behavior. The teachers most often used maintenance, conversation, and praise in relation to solitary and parallel play. They most frequently used maintenance, redirection, and conversation In relation to interactive play.

There were no significant differences between the frequency and types of interventions teachers used for boys and girls; 2454 interventions used with girls and 2013 used with boys. However, there were some gender differences in parallel play: teachers intervened more with girls than with boys in relation to parallel play. The teachers used different patterns of interventions in different play areas. The teachers intervened most frequently in the art and dramatic areas, and less in the manipulative and block play areas.

Generally, teachers used different intervention in relation to children's social play patterns in different play areas. The teachers most often intervened in solitary and parallel play in the four play areas. They exhibited a high frequency of intervention in parallel and solitary play in the art area; most often using maintenance. The results of analysis I, presented in Table 1, show the relationship between teachers' interventions and children's social play patterns, the four play areas, and children's gender. These results show the main effect of two independent variables, children's social play patterns and play areas, in relation to one dependent variable, teachers' intervention. One independent variable, children's gender, did not influence the types of teacher intervention. There was no significant interaction effect among variables in the analysis.

Insert Table 1 about here

There is a significant difference in teacher intervention in relation to children's social play ($p < .001$). Types of teacher intervention were significantly different within the four play areas ($p < .001$). There were no significant differences between interventions used with boys and girls. In addition, there was an interaction effect between children's social play and play areas. Teachers' interventions were significantly different according to children's play in the different play areas. There was no significant interaction effect between play areas and children's gender, between children's play and their gender, and among the three independent variables. Teachers' interventions were influenced by children's social play patterns, by play areas, and by the interaction between children's play and play areas.

Analysis II. The results of analysis II show differences in teachers' intervention types related to cognitive play patterns, play areas, and children's gender. The teachers most frequently intervened in category 3, constructive play; next frequently in category 4, dramatic play. The teachers seldom intervened in category 5, functional play. There were some different intervention patterns used in relation to the cognitive play patterns. In relation to constructive play, the teachers most often used maintenance, conversation, and praise, and seldom used demonstration, participation, and command. In relation to dramatic play, the teachers most frequently used maintenance, conversation, participation, and redirection and seldom used demonstration and command. In relation to functional play, the teachers often used conversation, environmental modification, and redirection and seldom used maintenance, instruction, or command. There were no differences in the frequency and types of teacher intervention in relation to children's gender.

The teachers used different intervention patterns in relation to cognitive play patterns in the four play areas. The teachers most often intervened in constructive play in the art play area. The teachers used all interventions, but especially maintenance, praise and conversation in relation to constructive play in the art area. The teachers most often used maintenance, redirection, and conversation in the

dramatic play area. In the block area, teacher intervention was high in relation to dramatic play and constructive play. The teachers most often used conversation and maintenance in relation to constructive play and participation, and used conversation most often in relation to dramatic play. The teachers seldom intervened in functional play. When they did, however, they most often used redirection and conversation in the dramatic area. In general, there was a high rate of teacher intervention in constructive play in the art area, the block area, and the manipulative area, with teachers most often using maintenance, praise, and conversation.

The results showed a significant effect for the two independent variables -- children's cognitive play patterns and play areas -- in relation to types of teacher intervention. Children's gender did not seem to influence the type of teacher intervention used. There was a significant interaction effect between children's cognitive play and play areas. No significant interaction effect showed among the other variables. These results are presented in Table 2.

Insert Table 2 about here

There was a significant difference for type of teacher intervention in children's cognitive play ($p < .001$) and for type of teacher intervention in the four play areas ($p < .001$). There were no significant differences in type of teacher intervention between boys and girls. In addition, there was an interaction effect between children's cognitive play and play areas ($p < .05$), with teachers intervening in significantly different patterns in the children's play in the four different play areas. There was, however, no interaction effect between children's play and their gender, between children's gender and play areas, or among the three independent variables. The teachers' interventions were influenced by children's cognitive play patterns, by play areas, and by the interaction between children's play and the four different play areas.

Discussion and Implications

This study examined the relationships between teachers' interventions and children's play and play areas in preschool settings. The preschool teachers observed intervened most frequently in parallel and solitary constructive play in the art area. These forms of play were the most adult-directed and work-oriented play observed in these classrooms.

The teachers intervened least in dramatic play. They were seldom observed intervening in interactive play. Most of the teachers did not pay attention to group and interactive play in the classroom. While most of these teachers did not seem to feel that their intervention was necessary, this play was of short duration and much of it was repetitive. In addition, the interactive play often changed to rough and tumble behavior.

The teachers in this study also seldom intervened in constructive play in the block area or in the manipulative area. This latter area was used for passive play, with children participating in quiet play while resting or making a transition between activities.

While the teachers in this study stated that they valued play as a learning medium, there seemed to be a great number of missed educational opportunities related to play in these classrooms. While art is often considered a form of play in early childhood education, this study suggests that this is not actually the case. The art area was one where teachers were heavy handed in their interventions, to the point where the activity ceased to be play. As a result of the teacher-directedness of the activity and the product orientation observed, this activity became work.

In contrast, the teachers assumed a non-interventionist stance in some of the other play activities and play areas. Limitations were placed upon children's dramatic play activities since they were not extended by the teachers. In addition, children were denied the opportunities to develop social skills in their group and interactive play activities. Instead, these play activities were never elaborated and soon deteriorated into rough-and-tumble activities. While such activities might be valued in their own right, it seems doubtful that this was the intent of the teachers studied.

Teachers found little use for the manipulative play area except as a place to keep children busy during transition times. Again, there needs to be a concern for missed opportunities for generative manipulative play, such play could support the development of physical knowledge as well as knowledge that could serve as a necessary basis for the development of later mathematics learning.

This study informs the field as to when teachers intervene, how teachers intervene, and in which play areas teachers intervene in relation to children's play in nursery school. The results reveal a relationship between teacher intervention and children's play and play areas. Further research is needed to investigate the effects of specific types of teacher intervention on specific play patterns through experimental studies and longitudinal studies. Research could examine the change in the duration and complexity in children's play that might result from different teacher interventions used in relation to different forms of play and to different play areas. In addition, research could examine the influence of ecological factors on children's play, including the impact of social factors such as the number of adults, the number of children and their social interactions, as well as the impact of physical factors such as the kind and amount of materials and classroom settings.

Teacher interventions encourage children to participate in various types of play. They also extend children's play and promote its complexity. Teachers can extend and enrich children's interaction with their social and physical environment through the various forms of intervention noted. They can help children participate in educational play by: (a) providing social resources, such as by personally becoming involved in the play; (b) providing physical resources, such as additional materials for the play area, or (2) by enriching the ideational base of the play through providing information or play ideas.

Educational play depends on three factors in the classroom: teacher interventions, children's play, and play areas. To promote complexity and quality in children's play, the classroom environment could be enriched. Teachers could also interact with children when they play in the play areas.

Children's play is influenced by teachers' interventions. To maintain educational play, the teacher should seek an optimal level of interventions in children's play. Teachers should not discourage children's initiative in developing spontaneous and imaginative play. However, too few interventions fail to promote children's play. Without appropriate interventions, children's play becomes overly repetitive and leads to conflict and destructive behavior. In addition, teachers should provide enriched play materials and play areas in order to promote children's play.

There seem to be general patterns of teacher interventions in relation to children's play in preschool settings. However, individual teachers use different intervention patterns, and some teachers used some interventions more often than others. Since all interventions were not equally effective, teachers need to use different interventions for different types of play in different play areas, as well as combinations of interventions to encourage children to participate in more dynamic, active, and productive play.

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Figure Caption

Figure 1. The environment of educational play

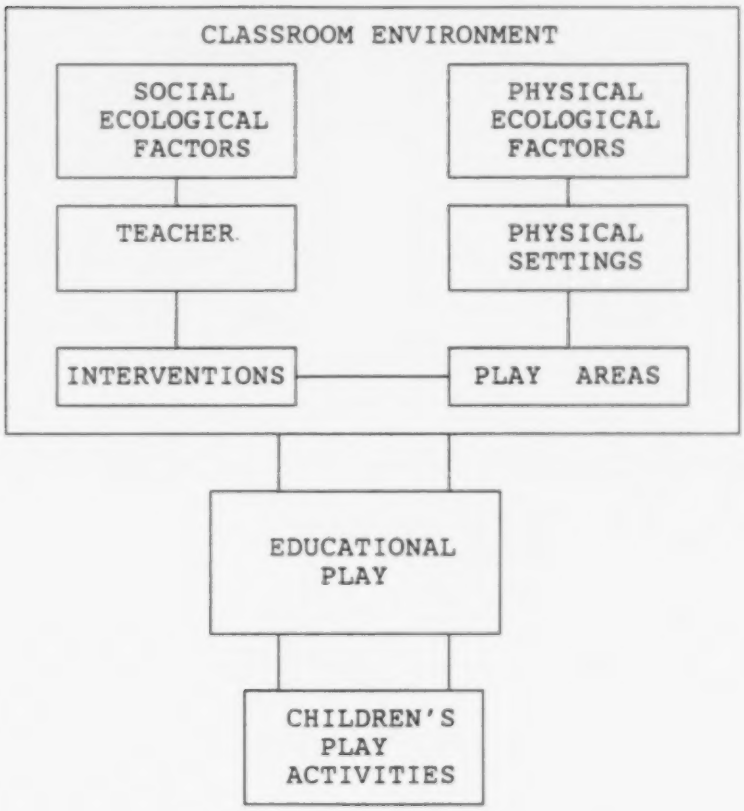

Table 2

The Variance Table of Analysis II by Log Linear Model

Source	df	x^2	p
Intercept	8	29.14	0.0003
C	25	150.80	0.0001 ***
A	24	53.92	0.0004 ***
C x A	45	61.80	0.0488 *
G	8	5.93	0.6551
C x G	20	23.49	0.2654
A x G	22	15.53	0.8386
C x A x G	20	19.00	0.5218
Residual	148	0.00	1.0000

Note. C = Cognitive Play; A = Play Area; G = Gender.

*** $p < .001$ * $p < .05$

Table 1

The Variance Table of Analysis I by Log Linear Model

Source	df	x^2	p
Intercept	8	192.93	0.0001
S	28	135.56	0.0001 ***
P	24	104.92	0.0001 ***
S x A	66	104.27	0.0019 ***
G	8	5.70	0.6808
S x G	24	18.90	0.7575
A x G	24	28.74	0.2302
S x A x G	50	43.73	0.7217
Residual	88	0.00	1.0000

Note. S = Social Play; A = Play Area; G = Gender.

*** $p < .001$